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AUTHOR	Brod, Rodney L.; And Others
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ABSTRACT

Special difficulties surround the efforts of the Indian Health Service (IHS) to recruit and retain physicians for its extensive health care delivery systems on Indian reservations, particularly those of the Navajo. A comprehensive questionnaire survey obtained data on the background and attitudes of federal physicians practicing in each of the 8 IHS clinical facilities on the Navajo Reservation; 90 (79%) of the 114 questionnaires distributed were returned. Factor analysis of the data indicated that the decision to practice on the reservation was motivated primarily by altruism and the cultural and recreational attractions of the Southwest; subsequent job-related satisfaction centered around relationships with Indian patients and the local community. These findings have significant practical implications for recruitment and retention, e.g., appealing to altruistic feelings, publicizing the leisure and life style opportunities of the Southwest, and emphasizing the attractions of community medicine in unique cultural settings. Since physician background, job-related satisfaction, and location factors in the study accounted for only 34% of the total variance in physician's plans to stay in IHS, much of the unexplained variance may be due to professionalization patterns and bureaucratic policies within the IHS; and future studies should incorporate these factors in their predictive models. (JH)

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RECRUITMENT AND RETENTION OF FEDERALLY EMPLOYED PHYSICIANS ON THE NAVAJO INDIAN RESERVATION

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Rodney L. Brod, Ph.D.
Dept. of Sociology, University of Montana, Missoula

Philip A. May, Ph.D.
Dept. of Sociology, University of New Mexico, Albuquerque

Thomas J. Stewart, Ph.D.
Dept. of Family Practice, Medical University of South Carolina, Charleston

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RECRUITMENT AND RETENTION OF FEDERALLY EMPLOYED PHYSICIANS ON THE NAVAJO INDIAN RESERVATION

Rodney L. Brod, Ph.D., Department of Sociology, University of Montana

Philip A. May, Ph.D., Department of Sociology, University of New Mexico

Thomas J. Stewart, Ph.D., Department of Family Practice, Medical University of South Carolina

ABSTRACT

Recruitment and retention of physicians in most rural areas of the United States has been a continuing problem. Special difficulties surround the efforts of the Indian Health Service (IHS) to staff its extensive health care delivery systems on Indian reservations, particularly those of the Navajo. Questionnaire data obtained from IHS physicians practicing on the Navajo reservation in 1976 are factor analyzed and inferences are drawn regarding recruitment and retention. Particular attention is paid to choice of location factors and areas of job and life satisfaction. Physicians' choice to practice on the reservation was motivated by altruism and the multiple attractions of the Southwestern United States. Once there, physicians' areas of satisfaction center around their relationship with Indian patients and the local community, but dissatisfaction is found in hospital staffing patterns, equipment and other bureaucratic and structual variables. A general retention model is tested in which background characteristics, location choice factors, and satisfaction indices are treated as independent variables in a linear regression equation predicting physicians' intention to practice indefinitely among the Navajo. Based on these results, two different types of physicians are described and problems of models predicting retention using only background and attitudinal measures are discussed.

RECRUITMENT AND RETENTION OF FEDERALLY EMPLOYED PHYSICIANS ON THE NAVAJO INDIAN RESERVATION

INTRODUCTION

During the past quarter of a century, the Indian Health Service (IHS) of the United States Public Health Service has developed a modern, extensive health care delivery system for Indian communities throughout the continental United States. However, physician recruitment and retention has been a problem for the IHS (U.S. Committee on Veteran's Affairs, 1976) and, more specifically, for the Navajo Reservation today (May, et.al., 1977a; 1977b).[2] Generally, it was thought that poor working conditions experienced within the rural, isolated Indian communities, cultural differences and other factors were major contributors to the problem of finding and keeping physicians for the Indian Health Service clinical facilities. For years, the IHS depended heavily on the physician draft to obtain may of its physicians, but with the termination of the physician draft in July of 1973, a large, ready pool of physicians was no longer available and the IHS was forced to recruit openly upon the physician market (May, 1977).

Robert and Rosalie Kane (1973) provided the first, detailed description of the Indian Health Service as it existed during the draft period on the Navajo Reservation. Much of their account focused on the severe problem of retaining physicians and they described two major physician groups employed at that time by the Indian Health Service. The first group, called "two year men," referred to the preponderance of young physicians who were brought to the Navajo Reservation through the physician draft. Kane and Kane described this group as being young, well educated, and interested in Indian culture. They also observed a process which they felt was common for the two year man; "despite motivation and interest in the Indians' culture, the two year man too often responds to the

imperfect system with its heavy work loads by giving the patient abrupt treatment. Such an end result may seem inconsistent, but the consequences of stifled enthusiasm is often impatience and easy disillustionment" (Kane and Kane, 1973:26). The second group of physicians were described by Kane and Kane as being "careerists" and were older, less-educated, and more conservative. It was suggested that the careerists were able to cope better with the bureaucratic structure by being loyal to the organization. Kane and Kane recognized however, that their generalizations regarding these groups were based upon personal observations and not upon a substantial data set.

After the end of the physician draft, the Indian Health Service was faced with a situation in which they had to plan and implement a broader recruitment program. Hostetter and Felson (1975) described the circumstances involved in this transition period in their report of a national survey of IHS physicians. In an attempt to identify the most salient recruitment variables, they analyzed the personnel files of over 400 physicians regarding particular attitude sets. Although they were unable methodologically to rank the multiple motivators that prompt physicians to work for the Indian Health Service, they suggested from the attitude survey that personal contact on the part of physicians with IHS personnel and facilities was a critical factor in recruitment and that interest in American Indian cultures also appeared to ba a factor of some attractiveness to IHS physicians.

A review of the substantial literature over the past 15 years regarding non-federal physician location patterns suggests that background variables and size of community (Parker, et al., 1969) especially that of the physician, the physician's spouse, and of the physician's medical education (Breisch, 1970) should be important factors in choosing rural

practice. That is, physicians who themselves and whose spouses had community origins in rural areas were more likely to select rural areas for practice (Taylor et.al., 1973; Cooper, et. al., 1972); likewise, physicians were expected to practice in regions where they grew up or where they were trained (See Stewart, 1976; Champion and Olsen, 1971; Yett and Sloan, 1974). Several recent studies indicate otherwise however.

For example, in the only reported study of non-federal physicians in the states adjacent to the Navajo Reservation, Stewart (1976) found that background variables which had been identified in the previous national and regional studies were not adequate predictors of location patterns of Arizona and New Mexico physicians. Rather, both rural and urban physicians in those two states (as well as their spouses) came from rather broad and diverse backgrounds. Contradicting earlier literature, it was evident that the states of Arizona and New Mexico tended to recruit nationally from a very heterogenous physician population. A large proportion of both the physicians and spouses both grew up and were educated in the New England, Middle Atlantic, and Midwestern states. Similarly, Parker and Sorensen (1978) found substantial demographic diversity among physicians moving into rural practice in western, upstate New York.

In 1974 Boggs and Schork focused upon recruitment and retention factors on the federal system by surveying 415 dentists in the Indian Health Service. Focusing on a number of organizational factors variables such as unlimited sick leave, extensive annual leave, and opportunities for promotion were found to be related to job satisfaction. Additionally, it was noted that many of the factors leading to dissatisfaction also related to organizational components.

Items such as low pay, extensive paper work and red tape, limited opportunities for training, and poor maintenance of dental equipment were

all found to be areas of dissatisfaction. However, they found no single group of variables which served as good predictors of the decision to remain for an extended period of time within the Indian Health Service.

Some organizational factors may have great relevance for physician recruitment and retention. Indeed, Parker and Sorensen (1978) found that along with some predisposition for small community living, physicians also require good professional support organizations to sustain satisfying rural medical practices. In fact, organizational and structural factors consistently appear throughout the studies which have focused upon Indian Health Service in general and in the Navajo Area specifically. This is especially true in regards to physician recruitment, performance and retention. This is an important observation because such matters as the organization of the delivery of service, staffing patterns, work loads, and other organizational factors are ones which can be influenced and effected by policy decisions and changes within the organizational structure of Indian Health Service.

Interestingly, this phenomena can be considered in the more general context of the socialization of physicians within bureaucracies and organizations supported by the federal government throughout the entire country. Tillson (1973), and others have observed that physicians who have practiced within the Office of Economic Opporunity Neighborhood Centers have revealed some of the same attitudes and concerns regarding physician activities within bureaucratic structures. This too, is consistent with the observations of Mechanic (1976) and Rushing (1975) that there is a growing bureaucratization of the performance of physicians and that physicians will increasingly have to cope with organizational structures. Agencies such as the Indian Health Service, Neighborhood Health Centers, National Health Service Corps and other federal components are

having to pay substantially more attention to the matter of organizational and structural impacts upon physician performance, attitudes, and retention. Thus, such matters as consumer participation and decision making, administrative structures, poor staffing patterns, and other situational variables appear to be more critical to the efforts of these local and federal programs than are such far-removed matters as physician community of origin or other background variables.

In summary, the literature is somewhat conflicting regarding the influence of background characteristics of physicians (and their spouses) on rural practice; however, certain choice of location factors appear to be important in the recruitment of physicians to rural areas and, once there, localized organizational and professional areas of satisfaction may become crucial for retention. While the recent efforts of Parker and Sorensen (1978) were along these lines, their methodology of simply comparing responses from two different instruments (one for physicians moving out of rural areas and a different one measuring attitudes of physicians moving into those same areas at a later time) provides no clear demonstration of the specific independent factors underlying physicians' attraction to and their decisions to leave rural practice.

Therefore, the present study tests a general model of physician retention by: 1) specifying potentially important background characteristics, choice of location factors, and areas of satisfaction of Federal physicians practicing on the Navajo reservation and 2) determining which, if any, of these types of variables independently predict intention to practice indefinitely in this rural area.

METHODOLOGY

The Navajo Health Authority, a corporate entity of the Navajo tribe, and the Navajo Area Indian Health Service have been very active in the

processes of recruiting and retaining physicians to staff the eight IHS clinical facilities[3] now active in the Navajo Reservation. Through their efforts and based upon the previous research, a comprehensive survey questionnaire was designed to assess the background and attitudes of Federal physicians practicing in each of the 8 service units within the Navajo Reservation. A voluntary, mailed return procedure with limited phone follow-up resulted in a return rate of 90 questionnaries (or 79%) from the total population of 114 physicians working in the Navajo Area IHS in June of 1976.

The general retention model being tested here treats these physician's background characteristics, choice of location factors, and areas of satisfaction as independent predictors of intention to practice indefinitely in the Navajo Area. Thus, the following analyses are performed and reported below: 1) background or demographic data are used to profile Navajo Area IHS physicians 2) their education and work experience are described 3) factor analysis is employed to summarize their various reasons for deciding to practice on the Navajo Reservation and to delineate their major sources of satisfaction and dissatisfaction, and 4) having ascertained that the background characteristics, choice of location factors, and satisfaction indices are statistically, relatively independent of each other, these types of variables are then treated as independents in a multiple, linear regression equation predicting intention to practice indefinitely in the rural Navajo Area.

RESULTS

Profile of Navajo Area Physicians

A brief description of some basic sample characteristics will provide a better understanding of the background of physicians employed by the Navajo Area Indian Health Service. As expected, the vast majority

(92%) of the physicians are male and young, indicative of the most common pattern found in the Indian Health Service (IHS); that is, the age distribution in Table 1 is positively skewed, with a median of 32.8 years and a mode of 29 years

(Table 1 about here)

Although not shown in tabular form, over three-fourths (76%) of the physicians are married, indicating the need for supplying services for their spouses and families (e.g., family housing, schools, recreation, etc.); satisfaction with community opportunities for their families will be discussed in a subsequent section.

Regarding community size of origin, the Navajo Area physicians are like medical students in general who tend more than the general population to be from urban areas (Weiskotten, 1960; Booker, 1979); i.e., over fifty per cent come from metropolitan areas of 50,000 persons or more while only 11 per cent come from rural areas (See Table 2).

(Table 2 about here)

Although not in tabular form, a large majority of the physicians are from Eastern U.S. backgrounds; that is, over 60 per cent were born east of the Mississippi and only 6.6 per cent were born in the Rocky Mountain region which includes the Navajo Reservation. Thus, it appears that factors other than rural community origin and early regional contact influence location of practice for Navajo Area physicians.

In addition, the physicians come from families (with an average of 2.8 children) of high socio-economic status. The education level of the parents of Navajo Area doctors is quite high; 64 per cent of the physicians' fathers have at least some college while 36 per cent hold a graduate degree and, similarly, 58 per cent of the mothers have some

college and 18 per cent have attended graduate school. Regarding fathers' occupation, 57 per cent of the physicians' fathers are classified as professional, technical workers. The most frequent occupations are: physician (14%), manager (6%), real estate salesman (6%), chemist (4%), farmer (4%), college professor (3%), pharmacist (3%), and religious worker (3%). The most frequent occupations of the residents' mothers are: housewife (53%), teacher (16%), secretary (6%), nurse (4%), optometrist (1%), and physician (1%). Thus, the occupation and education levels of the physicians' parents indicate high socio-economic status, the pattern expected for most physicians in the U.S. (Weiskotten, 1960; Booker 1979).

Education and Work Experience

Moving from the physicians' earlier years to their medical education and related experience, Table 3 indicates that virtually all have finished their internships while only 61 per cent have had some residency. The number completing residency and obtaining board certification is, however, not clear. In addition, only 36 per cent have had a previous medical practice prior to coming to the Navajo Area and very few have had two or more previous practices. Thus the profile of the young medical staff, recently out of training is again portrayed.[4]

(Table 3 about here)

The size of the community in which a person undertakes his medical education may exercise some influence on a person's choice of where to locate his practices; however, internship and residencies are only available in larger cities. Therefore the data in Table 4 should be reviewed with this in mind. As physicians move through college, medical school, internship, etc., there is increased pressure to move to more urbanized areas, for that is where the schools and/or hospitals are located. Nevertheless, from the college data it is clear that even college

experience tends to be urban; 76 per cent of the physicians attended college in cities of 10,000 or more population. All other levels of education were undertaken in the city, usually of large size.

(Table 4 about here)

Also, training locations for these physicians are fairly well distributed among the U.S. regions, indicating the great variation of geographical background and experience of Navajo Area doctors.

Thus, Navajo Area IHS physicians are generally from urban environments, small families of high socio-economic status, and from all regions of the U.S., but particularly east of the Mississippi; so there is little evidence of experience in rural areas, particularly those in the Southwest. Furthermore, the data appear to suggest that physician retention in the Navajo Area, and in the IHS generally, may be problematic because young physicians come for more training and not careers. More specifically the physicians' responses to the question "At what point did you decide to practice in your present location?" indicate that decisions to locate were made generally after medical school (72%); that is, most (28%) were made in residency and during internship (21%) while 23 per cent were made in a previous practice (23%). Thus, the observed pattern may consist of vestiges of the former IHS physician draft period when physicians were recruited right out of internship and residency, tended to stay two years, and then moved on to further training and/or private practice.

Choice of Location Factors

Having described Navajo Area physicians' background and educational characteristics, the focus turns now to the results of factor analyzing questionnaire items that elicit why physicians chose to practice in the Navajo Area Indian Health Service and whether or not they are satisfied with particular aspects of work and life among the Navajo. This immediat

section concerns the choice of location factors while the satisfaction indices will be described in a later section.

Factor analysis provides an especially appropriate method of extracting the major independent factors appearing in the responses to the pool of items regarding location choice. This is accomplished by correlating each individual item with every other item on location choice. Where several variables intercorrelate highly with one another, statistical clusters are produced which, when examined, indicate underlying similarities in the variables; i.e., they are answered in a similar way implicitly because of a strong belief in a particular ideal or a particular motivating factor (See Nie, et al., 1975 or Kerlinger, 1973).

The results of factor analyzing the 17 items regarding the decision of where to practice medicine (See Table 5) indicate that physicians chose to practice in the Navajo Area for at least five major reasons. The primary factor influencing physicians' choice of location involves a series of items dealing with altruism. Essentially, IHS doctors decided to practice in Navajo Area communities because it seemed they could be of greater service there than in other areas (84%), the communities had a serious physician shortage (61%), they were committed to the local health care model (60%), or, in some cases, their religion dictated it (13%).

(Table 5 about here)

The second most important factor in location choice is the attractiveness of the Navajo Reservation. The important aspects of this dimension include the availability of desired leisure activities (61%), the attractiveness of the area to the physician's spouse (44%), and, for some (20%), the opportunity to build an economically productive practice in a short period of time (in this case the economics center around the IHS salary).

For many doctors (49%), friends, and for some (20%), faculty members provide sources of influence in the location decision. Also, practical decisions are important to some physicians. That is, factor four indicates that there is some pragmatism involving physicians being actively recruited (39%) and locating for health reasons (9%). Also, the final factor points to another economic dimension in the location choice; here however, only 14 per cent of the physicians were influenced by pressing financial matters and most (88%) were not being reassigned to the area by IHS.[5] Pressing financial matters in this case refer to the repayment of educational loans.

In sum, there are several independent factors underlying location choice. First, physician's choice of location is based primarily on altruism and being of help to those who need medical assistance. Second, the Southwest is seen by this cohort of physicians as an attractive area for a variety of reasons particularly the leisure and recreation opportunities. Third, friends and professors are significant persons who influence choice of location. Fourth, practical concerns of health and security are also involved in some of the decisions. Practically speaking, each of these points could be emphasized in any recruitment and retention efforts.

Satisfaction Indices

Turning now to what happens to physicians after being recruited, a final set of independent variables consists of 21 items measuring physician satisfaction with community and work conditions. Likert scales were used to determine whether physicians are very satisfied, satisfied, undecided, dissatisfied or very dissatisfied with various specific conditions. These scale items were factor analyzed as described above to produce six independent satisfaction indices.

(Table 6 about here)

Satisfying to most physicians (87%) is the professional role which is demanded by IHS; also, the vast majority feel that they are advancing professionally (71%), that the extent (69%) and nature (71%) of their contacts with colleagues are fulfilling, and that they can remain reasonably current in their areas of specialization (67%). The second-most satisfying factor concerns life style activities. Most physicians are happy with their opportunities for time away from work (78%), pace of life (84%), and educational opportunities (47%).

The third-most satisfying area concerns community and social activities. The majority of physicians report satisfaction with the environment for personal and family life (66%), leisure opportunities (80%), cultural and social activities (52%), and interpersonal relationships (53%). Indeed, the social and personal relationships made by many IHS personnel with fellow workers, community people, etc., are truly deep and lasting.

The physician-patient relationship is another area of satisfaction with Navajo Area doctors. They are most pleased with the quality of patient relationships (65%), the cultural dynamics (51%), and the nature and types of medical problems seen among the Navajo (87%). Although somewhat less pleased, but still more satisfied than dissatisfied Navajo Area physicians are pleased with Navajo patients' cooperation (37%), communication (40%), and use of hospital services (43%). On the whole, Navajo Area IHS physicians appear satisfied with their patients. Obviously, working in a cross-cultural setting can be both interesting and, at times frustrating; in general however, it appears to be a positive element with these physicians. Hospital staffing and equipment however, are areas of least satisfaction. A full 60 per cent of the respondents are dissatis-

fied with hospital staffing and 40 or more per cent are dissatisfied with their service area staff and their access to equipment and technology.

In summary, Navajo Area physicians tend to be pleased with their professional roles; life style, community, and social activities; and their relationships with patients. They tend to be dissatisfied with hospital staffing and equipment. For recruitment the items of greatest satisfaction could be emphasized to the advantage of the Navajo and IHS. Also, for the Navajo Area, improvement must be made in the staffing and equipment problems. Unlike many of the areas of satisfaction, these factors (identified before by Parker and Sorenson, 1978; May, Broudy, et al., 1977; Stewart, et al., 1976) are manipulable; that is, they could be changed to attract new physicians and, perhaps, to improve retention as well. If contacts with patients or community environment had been found to be unsatisfactory they could not be improved as easily as staff and equipment.

Regression Analysis

In order to test the general retention model discussed earlier, multiple regression techniques will provide an efficient method of assessing the independent effects of location choice factors, satisfaction indices, and background variables on physicians' intention to practice indefinitely in the Navajo community; i.e., "do you intend to practice indefinitely in this community (circumstances permitting)" About 27 per cent of the physicians answered that they planned to stay indefinitely while the majority said "no". If one had a measure of length of experience in IHS, the "yes" answers would probably be from some "new recruits" with one year or less experience as well as from the actual career physicians.[6] Nevertheless, those who answered this

question affirmatively represent a significant number of IHS career physicians. Thus, although the item may reflect intended behavior rather than actual behavior, it remains a highly useful dependent variable.

Regression analysis assumes that predictors are relatively independent (statistically) of one another. Fortunately, the number of significant zero-order correlations among the independent predictors (background, location choice, and satisfaction indices) are few (only 18%) and relatively small in magnitude; the major exceptions are the expected higher correlations (of .66) between community size of birth and college and between father's and mother's education. Furthermore, in preliminary analyses (May, 1977), each satisfaction index was treated as dependent and regressed on physician background characteristics and choice of location factors. None of the multiple R's were significant at the .05 level, indicating that the satisfaction indices are situational; that is, community and job satisfaction dimensions are relatively independent of physician background characteristics and location choice factors. Similarly, except for physician age, the five location choice factors were found to be relatively independent of background. That is, other background variables being equal, older doctors reported being significantly less influenced in their location choice by significant others and economics but were more concerned with health problems; however, no background differences were found in attraction to location and altruism. Also, the location choice factors themselves were derived through factor analysis and, therefore, are statistically, relatively independent of each other; the same is true for the satisfaction indices. Thus, in addition to physician background characteristics, the satisfaction indices and location choice factors also are treated as independents in the present analysis, and since the theoretically independent variables are statistically,

relatively independent as well, the interpretation of the subsequent regression results will be enhanced.

The specific model being tested involves regressing the dependent variable, intention to practice indefinitely, on 18 independent measures, using the results of a multiple, linear regression procedure. The equation includes the following types of variables:

$$Y = f(X_1, \ldots, X_{18})$$

where,

Y = Intention to practice indefinitely in the present community,

and

$X_1 - X_7$ = Background Characteristics

$X_8 - X_{12}$ = Location Choice Factors

$X_{13} - X_{18}$ = Satisfaction Indices

Considering that there are only ninety cases in the sample, it should be kept in mind, that even for exploratory purposes, the equation includes a relatively large number of independent variables.

Table 7 indicates that the equation outlined above accounts for over 34 per cent of the total variance in whether or not physicians plan to stay in practice among the Navajo and over three-fourths of the explained variance is contributed by the first four predictors. By far the best predictor of retention is age; alone, it accounts for about 11 per cent of the total variance. The older the physician, the more likely he/she intends to stay. This is not surprising, for older physicians are no longer in training and already have substantial career investments in their Navajo practices. Another 11 per cent of the variance is accounted for by the major satisfaction index and location choice factor; i.e., physician-patient relations and altruism. The physician-patient relationship is the second most powerful predictor;

that is, physicians who are most satisfied with their patient relationships intend to practice in the Navajo Area indefinitely. Similarly those who are highly motivated by altruism in their location choice are planning to practice in their present location for an indefinite period. Interestingly those who intend to stay are not motivated by economics, the fourth most powerful predictor. In other words, those physicians motivated toward economic gains do not intend to practice indefinitely. Thus, physicians who plan on staying in the Navajo Areas are older persons who are motivated by altruism and client relations rather than by economics.

(Table 7 about here)

SUMMARY AND IMPLICATIONS

In summary, Navajo Area physicians tend to come from small, eastern families of higher socio-economic standing. They also tend to be young, married and have recently completed their internship and/or residency in various regions of the country.

Their choice to enter IHS and practice in the Navajo Area generally was made after medical school so recruitment efforts prior to the third or fourth year of medical school would not be warranted. The major motivators to locate the work among the Navajo are altruism, the attractiveness of the Navajo Nation and the Southwest, the influence of friends, pragmatic reasons, and economic security.

The physicians' areas of satisfaction and dissatisfaction were also explored. A major area of satisfaction is the physician-patient relationship. Also satisfying are the community and social activities, the professional role offered by IHS and the opportunities for career advancement, leisure and life style. The physicians tend to be dissatisfied, however, with the hospital staffing, facilities and technology.

Of all the physicians about 27 per cent indicate that they plan to practice indefinitely in their present locations. Several important factors related to this decision emerged from the multiple regression analysis. Older physicians, not motivated by economics, are more likely to plan on staying. More importantly satisfaction with client relationships and altruism are important factors underlying physicians' intentions to continue practicing in the Navajo Area.

The regression results suggest two different types of Federal physicians practicing in the Navajo Area. The most common (Type 1) is the young physician, fresh from internship or residency, who is initially attracted to the area, but is primarily motivated by economics and temporary, situational needs. These physicians come to the Navajo Reservation for a short period to take care of pressing financial matters and perhaps to gain experience of providing health care in a unique cultural setting. They will probably soon leave for greater economic gains of private practice or further, more specialized training elsewhere, as they tend to be neither as altruistic nor happy about the client relationships encountered among the Navajo.

Similar in background and recruited in most cases for similar reasons, the other type of physician (Type 2) accounts for approximately 27 per cent of the physicians studied here. This person is an older physician who is making a career of the Indian Health Service practice. This type of physician is motivated less by economic attractions, is generally altruistic and is satisfied or appreciative of the relationships shared with the Navajo patients. Such doctors are likely to stay despite generally inadequate staffing and facilities by learning to live with or tolerate such areas of dissatisfaction.

Whether these two types of physicians are distinguishable prior to

several years of service is not clear, but the information contained in this study has been used to approximate such a predictive model. Whether one of the two types of physicians described here is more efficient or suited for IHS service is also not clear. Certainly the second type of physician will stay longer, are older, (probably more experienced) and therefore would improve the continuity of health care by decreasing turnover. But the first type of physician might add an unmeasurable "vitality" to the Indian Health Service and enhance the health care delivered.

Theoretical Implications

Interestingly, in spite of different motivations and time commitments between these two physician types, they do not differ significantly in background except for age. Also, both types of IHS physicians on the Navajo Reservation match reasonably well the general characteristics of rural and urban non-federal practitioners within Arizona and New Mexico (Stewart, 1976). It may well be that the federal physicians of the Navajo Reservation are a component of a larger trend which is noted among physicians in general in Arizona and New Mexico. That is, both federal and non-federal physicians within these two states come from very heterogeneous backgrounds and do not have substantial indications of early ties to these states, having migrated in at later points in their lives and careers. It is known that Arizona, New Mexico and other Sun Belt states are experiencing substantial immigration from other parts of the country, particularly among professionals and technical workers. It seems reasonable that the general migration of physicians is consistent with this labor mobility pattern. In addition, there are indications that many Southwestern regional physicians were formerly with the Indian Health Service, but decided to settle locally in private practice in small communities in rural areas adjacent to or close to the Navajo Reservation.

In any case, background characteristics such as rural community origin and regional contact during educational experience do not appear to bear on either recruitment or retention decisions.

The results of this study do appear to support the findings of Hostetter and Felson (1973) in that personal contact with or the influence of IHS personnel is important to physicians' initial location choice; however, it is not found to be as crucial a factor in retention as is the physicians' actual interaction with American Indian patients. On the other hand, these findings tend to contradict those of Boggs and Schork (1974) who found that organizational and bureaucratic factors were important in regard to retaining dentists in rural areas. That is, while most of the physicians in the Navajo Areas are dissatisfied with the hospital staff and equipment, these factors are not found to be important in predicting their intention to stay. It may be the case, as Parker and Sorensen (1978) conclude regarding physicians in rural, upstate New York, that despite general dissatisfaction with organizational and professional support systems in rural areas, some physicians continue to practice while others move on; this suggests that other factors such as altruism and satisfactory physician-patient relationships underly physician retention in rural areas, particularly those with unique cultural attractions.

Finally, these findings reinforce the earlier observations of Kane and Kane (1973), who identified two groups of IHS physicians practicing in the Navajo Area. The first group consisted of short term or "two year" physicians who were primarily young, better educated, but less altruistic, less satisfied with their contacts with Navajo patients, and less pleased with the community, social and leisure opportunities; the second group was an older group of physicians who were more likely to have a career in the Indian Health Service. The older group of physicians

was motivated not so much by economic factors as they were by the human dimensions. While Kane and Kane based their statements upon their observed IHS physician behavior, the results of the survey data reported here are based upon the self-reports of physicians themselves and are not directly related to the actual behavior of the physicians. Yet, although the two works are based upon different types of data, the conclusions regarding the two types of physicians within the Navajo Area (admittedly in different time frames, the early 1970's and late 1976) are remarkably alike.

Practical Applications

The practical implications of this study for recruitment and retention are significant. Major factors relating to choice of location can be used in designing recruitment efforts. For example, appealing to the altrustic feelings of physicians (see Hostetter and Felson, 1973), along with realistic presentations of the leisure and life style opportunities of the reservation and the Southwest could be implemented through special pamphlets, books, and films. Such books have been prepared by the Billings Area Office of IHS in Montana (Schultz, 1976). Similarly emphasis in medical schools could be placed on community medicine in unique cultural settings and on the resulting satisfaction with the physician-patient relations.

Although not found to be significant predictors of intention to stay, improvement of hospital staff and facilities would at least remove some of the organizational sources of frustration and dissatisfaction that have been documented among Navajo Area physicians. (See May, Broudy, et al., 1977). Thus, any upgrading of existing equipment and facilities and increase in staff would have a decided impact on the satisfaction of the physicians in general and possibly on their actual retention as well.

Various tribal organizations (or any local community organization) can play a part in attracting and retaining physicians. Encouraging 3rd and 4th year medical students and residents to undertake field placements on reservations would be beneficial. These students may be likely to return. Various media could be used in medical schools to increase the awareness of the benefits of living and practicing among the Navajo. In addition, by encouraging Indian students to enter medical professions (particularly medical school) through scholarships, education, counseling, etc., a new type of physician might be created. Rather than having a high turnover of physicians who are neither very altruistic nor satisfied with patient-relations among the Navajo, Indian physicians who make a career of IHS might be the opposite. Motivated to work among their own people on their own reservation could very well result in higher physician retention.

Further Research

The background, job-related satisfaction, and location choice factors included in this study account for only 34 per cent of the total variance in physicians' plans to stay in IHS. What then of the remaining 66 per cent of the variance? The final point is that much of the unexplained portion may be simply due to the structural and normative vestiges of professionalization patterns within the Indian Health Service and medical profession in general, none of which are readily or directly measured by the type of attitudinal and background instrument used in this study. Among many physicians in IHS (particularly the young, less experienced Type 1 described above), there appear to be normative pressures which strongly encourage them to view IHS service as merely a short training period before moving on to other types of training and/or practice. This may be a carry over from the two-year service days of the physician draft, but also a reflection of the fact that working for a bureaucracy has not been

a dominant norm or ideal within the American Medical Association or many medical schools. Thus, professional expectations to be a doctor in private practice or in more familiar surroundings (in a cultural and technological sense) may weigh heavily on the physician's ultimate course.

Finally, the bureaucratic policy of the Indian Health Service and the Commissioned Corps may play a role in non-retention in rural areas. As physicians, dentists, or other employees remain in the IHS for longer periods of time, they come under pressure to "move up" and "assume a supervisory level" of duty. Many physicians who would be happy to remain in local, rural practice may have to acquire special mechanisms for resisting pressures to "move up or get out". Once a physician has been in the IHS for three or more years, there is the normative expectation to become a service unit director, chief of staff, an area office administrator or to move to a larger service unit. Thus, the policy of the bureaucracy itself encourages the type and frequency of moves which may result in non-retention. In any case, since background and attitudinal variables alone do not appear to fully explain physician recruitment and retention, future studies should also incorporate structural determinants in their predictive models.

Table 1: Age of Navajo Area IHS of Physicians
By Frequency and Percent

Age in Years	f	Percent
27 - 29	26	29.0
30 - 34	27	30.0
35 - 39	12	13.3
40 - 44	8	8.9
45 - 49	4	4.4
50 - 59	2	2.2
60 and over	2	2.2
Unknown	9	10.0
	90	100.0

Median age = 32.75
Mean age = 34.53
Modal age = 29.0

Table 2: Community Size of Navajo Area IHS Physicians' Place of Birth by Frequency and Percent

Size	f	%	U.S. Population (1970)
Greater Metro Area (1 million or more)	21	23.3	9.2
Lesser Metro Area (50,000-999,999)	25	27.8	26.7
Small City (10,000-49,999)	19	21.1	19.3
Town (up to 9,999)	15	16.7	23.5
Rural Area (farm, ranch, reservation)	10	11.1	21.3
TOTAL	90	100.0	100.0

U.S. figures from Bureau of Census, Department of Commerce, Statistical Abstract of the U.S., 97th Edition, Washington, D.C., U.S. Government Printing Offices, 1976.

Table 3: Frequency and Percent of Navajo Area IHS Physicians Completing Various Types of Training

Experience Category	f	%
Complete Internship	88*	97.8
Had Some Residency Training	55	61.1
Prior Medical Practice		
1 previous	32	35.6
2 previous	12	13.4
3 previous	11	12.3

* There was one "unknown" case, so the actual total might be 89 for only one listed no internship.

Table 4: Community Size of Navajo Area IHS Physicians' Place of Education and Training

Size	College		Internship		Residency	
	f	%	f	%	f	%
Greater Metro Area (1 million or more)	22	24.4	45	50.0	34	61.8
Lesser Metro Area (50,000 - 999,999)	25	27.8	40	44.4	17	30.9
Small City (10,000 - 49,999)	21	23.3	2	2.2	4	7.3
Town (up to 9,999)	13	14.4	0	0.0	0	0.0
Rural Area (farm, ranch, reservation)	8	8.9	0	0.0	0	0.0
Unknown	1	1.1	3	3.3	0	0.0
Total	90	100.0	90	100.0	55	100.0

Table 5: Factor Analysis Results - Choice of Location Factors Among Navajo Area IHS Physicians*

Factor #	Name of Factor	Eigenvalue	Percent of Total Variance Explained	Factor Loading	Percent of Physicians Being Influenced by Item	Description of Specific Items in Factor
1	Altruism	2.23	17.2	.743	84.5	It seemed I could be of most service to the community
				.672	61.1	Serious shortage of physicians in the area.
				.493	13.4	Community selected for reasons associated with religion.
				.403	60.0	Liked the health care model used in community.
2	Location Attractiveness	1.81	13.9	.662	61.1	Attracted by the leisure Opportunities of the area.
				.581	44.4	Spouse liked area very much.
				.504	20.0	Best opportunity to develop an economically productive practice in a brief time.
3	Influence of Others	1.48	11.4	.629	20.0	Recommendation of a faculty member.
				.626	48.9	The positive influence of friends who know the area.
4	Pragmatism	1.21	9.3	.587	38.9	Actively recruited by the Indian Health Service.
				.494	8.9	Personal health or health of spouse or children were factors
5	Economic	1.12	8.7	.487	14.5	It was necessary for me to repay a loan payment by service
				-.231	11.5	Reassignment.

* These five factors account for 60.5% of the total variance; i.e. only factors producing eigenvalues of greater than 1.0 are included.

Table 6: Factor Analysis Results

Areas of Satisfaction with the Work and Community Environment of Navajo Area IHS Physicians *

Factor #	Name of Factor	Eigenvalue	% of Total Variance Explained	Factor Loading	% of Physicians Satisfied	Description of Specific Items in Factor
1	Physician-Patient Relationship	4.62	22.0	.856	64.5	Quality of patient relationships
				.673	36.6	Degree of patient cooperation
				.657	43.4	Use of hospital services by patients
				.649	51.1	Effects of cultural dynamics on patient
				.512	40.0	Adequacy of physician/patient communication
				.503	86.7	Nature and type of medical problems seen
2	Community & Social Activities	3.21	15.3	.807	52.2	Cultural and social activities
				.661	65.6	Environment for personal and/or family life
				.586	53.3	Interpersonal relationships in community
				.525	80.0	Leisure activities
3	Professional Role & Career Maintenance	2.24	10.7	.875	71.1	Nature of collegue contact
				.835	68.9	Extent of collegue contact
				.673	71.1	Your own professional development
				.589	66.7	Ability to remain reasonably current
				.496	86.7	Current professional role
4	Life Style Opportunities	1.49	7.1	.791	77.8	Amount of time away from practice
				.555	86.4	Pace of Life
				.488	46.7	Educational opportunities for self & family
5	Staffing	1.37	6.6	.866	44.5	Specific service staffing situation
				.681	31.1	Hospital staffing situation
6	Hospital	1.07	5.1	.639	36.6	Access to equipment & other medical technology.

* These six factors account for 66.8% of the total variance; i.e., only factors producing eigenvalues greater than 1.0 are included.

Table 7: Results of Regressing Intention to Practice Indefinitely on the Navajo Reservation on Selected Independent Variables and Factors

Variables of Factor Scale	Zero Order r	B	Standard Error of B	Beta	F	Significance Level	% of Total Variance	% of Explained Variance
Age	.353*	.016	.007	.298	4.96	.029	10.52	30.77
Physician-patient Relationship	.265*	.034	.018	.212	3.85	.054	5.64	16.49
Altruism	.290*	.046	.029	.169	2.54	.115	4.91	14.36
Economic	-.271*	-.145	.086	-.180	2.85	.096	4.88	14.27
Hospital Equipment	.256*	.054	.015	.065	.26	.611	1.67	4.88
Community size birth	.144	.037	.050	.019	.55	.459	1.57	4.59
Leisure & Educational Opportunities	.143	.033	.036	.109	.82	.368	1.55	4.53
Professional role & Career Maintenance	.100	-.023	.021	-.123	1.20	.279	-1.24	-3.63
Community & Social Activities	.109	.025	.026	.112	.92	.340	1.22	3.57
Father's Education	-.098	-.021	.028	-.101	.52	.472	.99	2.89
Community Size College	.122	.024	.048	.067	.24	.672	.82	2.39
Hospital Staffing	.185*	.011	.040	.035	.07	.784	.64	1.87
Community Size Internship	-.105	-.017	.056	-.039	.09	.764	.41	1.19
Mother's Education	.012	.050	.035	.200	2.10	.151	.25	.73
No. of Children in Family of Origin	-.020	-.011	.014	-.104	.62	.435	.21	.61
Location Attractiveness	.036	.019	.038	.055	.25	.618	.19	.56
Influence of Others	-.009	.012	.049	.028	.06	.806	-.02	-.05
Pragmatism	.007	-.016	.056	-0.031	.08	.775	-.02	-.05

* Zero-order correlation coefficient is significant at .05 level

Constant 1.0259574 R^2 = .34188 F = 2.05 p = .017

FOOTNOTES

1. This study was financed in part by DHEW Contract No1-MB-24386 of the Navajo Health Authority, Window Rock, Arizona. All authors have been employed by the Navajo Health Authority, the organization initiating this study. Thanks are extended to Marty Austin, Marcella Hudson, Mary Tso, and Cindy Cesarz for their assistance with this project and to William H. McBroom and Fred W. Reed for their substantive and editorial suggestions on an earlier draft presented at the Rural Sociogical Society meetings in 1979.

2. The Navajo Indian Reservation is located in the Southwestern U.S. encompassing parts of the states of Arizona, New Mexico, and Utah. The total land area is approximately the size of West Virginia and the current population is approximately 150,000. It is one of the most rural and isolated areas in the United States.

3. There are also f[illegible]e very small, non-federal clinics operating within the reservation.

4. The employment status of the physicians deserves mention here. Indian Health Service professional employees are hired under one of two systems, Commissioned Corps of the Public Health Service or the Civil Service. Each has its own advantages, but these advantages have fluctuated in the past with changing pay scales and other policy. In the past Civil Service paid more, but with recent incentive and continuance pay, the advantage is swinging the other way. Of all the Navajo Area physicians, 84 per cent are commissioned officers only slightly different from the IHS national average (U.S. Senate Committee in Veteran's Affairs, 1976).

5. Note that the latter factor loading is negative, quite low and based on only a few physicians who came to the area due to reassignment.

6. As originally designed, length of experience in IHS was to be regressed on a number of independent variables such as those described above, i.e., family, geographic, and education background (Stewart, 1975); however, the IHS experience item was inadvertently omitted from the questionnaire.

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